

Quick-Connect Nut and Bolt

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An engineer in MSFC's Structures and Dynamics Laboratory has invented a quick-connect, slow-disconnect nut and bolt. Used in the same manner as regular fasteners, the quick-connect nut and bolt are of special benefit in situations where connections must be made quickly.

The bolt has circumferential shells designed to constitute a standard external thread. Clips and springs hold the shells against the conical surface of the shank. When the bolt is pushed into a threaded hole, the bolt's threads are engaged within the nut, and the bolt is positively retained in the hole. Pulling the bolt only seats the shells more firmly into the thread. Reference figures 123 and 124.

Possible use scenarios include making emergency repairs to damaged vessels, reinforcing damaged structures, and working in hazardous environments in which a maximum amount of work must be performed in a very limited time (such as in the vacuum of space).

Licensing information on this patented fastening system is available by writing: Patent Counsel, Mail Code CC01, MSFC, AL, 35812, or by calling 205-544-0021.

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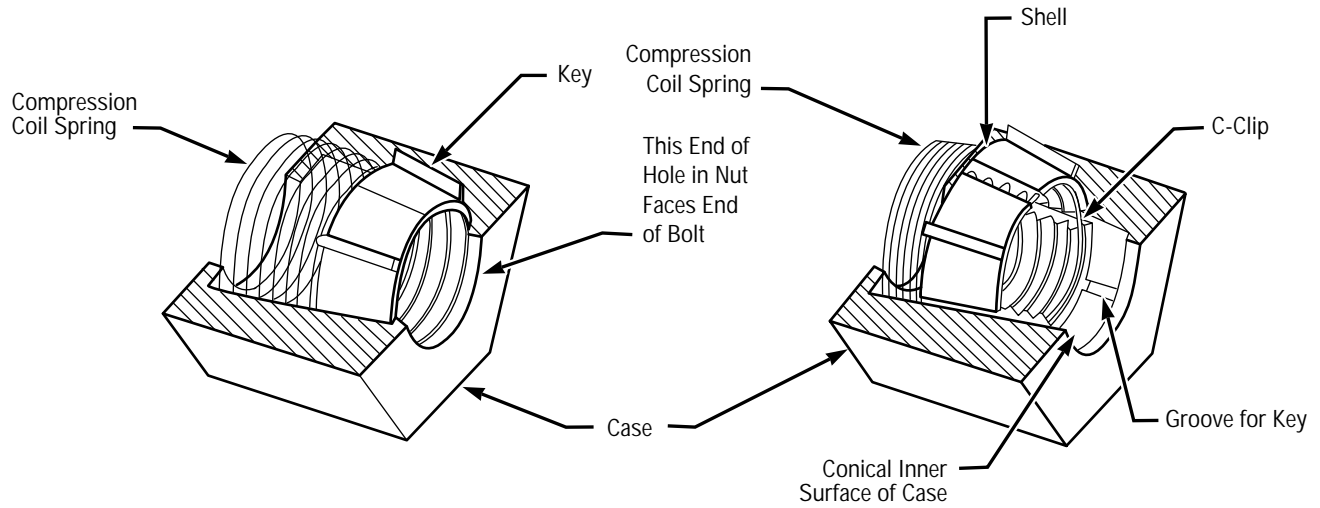


FIGURE 123.—Left, shells shown in normal position; right, shells shown pushed axially against coil spring.

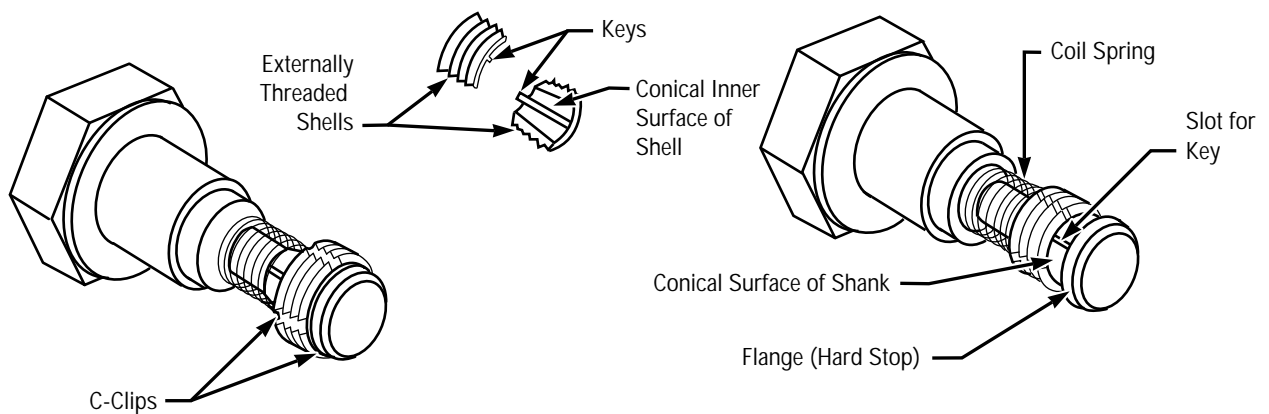


FIGURE 124.—Left, threads in normal position, as when standing freely or during engagement in thread hole; right, threads pushed back, as during insertion into threaded hole.